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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,263	11/19/2001	Michael A. Lamson	TI-31189	8850

7590 08/14/2002
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EXAMINER

MALDONADO, JULIO J

ART UNIT PAPER NUMBER

2823

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/989,263

Applicant(s)

LAMSON ET AL.

Examiner

Julio J. Maldonado

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 11 and 14 are objected to because of the following informalities: in claim 11, where applicants cite "...said device is packagesg as a..." should cite "...said device is packagedg as a..."; and in claim 14, where applicants cite "...shell comprises ceramic..." should cite "...shell comprises a ceramic...". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1, 3 and 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Choi (U.S. 6,013,109).

In reference to claims 1, and 12, Choi (Figs.3A-3D) teach a crack-resistance semiconductor package including a plurality of wire bonds (24) connecting pads on an integrated circuit chip (23) to conductive leads (25) of a semiconductor package; a low dielectric constant sheath (26) surrounding each wire (24); and a mold compound (29)

encasing the chip (23), sheathed wires, and leads (25) (column 2, line 66 – column 3, line 45).

In reference to claims 3, 10 and 11, Choi teaches that the thickness of the dielectric sheath is 2.5 microns minimum in each surface (column 3, lines 25-27); that the device is packaged in a ball grid array package; and that the device is packaged as a leaded surface mount package (column 2, line 66 – column 3, line 45).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4-9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi ('109) in view of Eysermans (U.S. 4,048,670).

In reference to claims 2, 8, 9, 13 and 16, Choi substantially teach all aspects of the invention but fails to show that the dielectric sheath comprises a foamed thermoplastic polymer consisting of polyurethane. However, Eysermans in a related art to stress-free package teach using foamed polyurethane as a resilient material (column 4, lines 13-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use foamed polyurethane as taught by Eysermans to surround the bonding wires of the package device of Choi, since polyurethane is a material that can withstand shock (i.e. resilient), and can provide physical support against differential forces (column 4, lines 13-39).

In reference to claim 4, Choi in combination with Eysermans teach using foamed polyurethane as a dielectric sheath, but fails to expressly teach that the dielectric constant of the sheath surrounding bond wires is in the range of 1.0 to 2.3. However, since the material used as the dielectric sheath is the same as that of the claimed invention, it is inherently known that the dielectric constant of the sheath is in the range of 1.0 to 2.3.

In reference to claims 5, 6 and 7, Choi in combination with Eysermans substantially teach all aspects of the invention but fails to show that the distance between wires is in the range of 50 to 100 microns; the mutual capacitance between bond wires is lower by a factor of 3; and the dielectric constant of the molding compound is in the range of 3.8 to 4.2. However, the selection of the claimed ranges is obvious because it is a matter of determining optimum process condition by routine experimentation with a limited number of species. In re Jones, 162 USPQ 224 (CCPA 1955)(the selection of optimum ranges within prior art general conditions is obvious) and In re Boesch, 205 USPQ 215 (CCPA 1980)(discovery of optimum value of result effective variable in a known process is obvious).

6. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi ('109) in view of Featherby et al. (U.S 6,368,899).

Choi substantially teaches all aspects of the invention but fails to teach that the cavity package shell comprises a ceramic or a composite polymer. However, Featherby et al. (Fig.8) teach a package device in which a cavity package shell comprises a ceramic material (column 1, lines 8-35) or a composite polymer (12/300/400) (column

11, line 50 – column 12, line 29). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a ceramic cavity package shell as taught by Featherby et al. in the package device of Choi, since ceramic cavity packages are well-known materials used to prevent impurities from entering critical portions of the package (column 1, lines 23-27). It would also have been obvious to one of ordinary skill in the art to form a composite polymer cavity package shell as taught by Featherby et al. in the package device of Choi, since this would result in a hermetic package (column 3, lines 12-14).

Conclusion

7. Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via julio.maldonado@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (703) 308-4918.

Art Unit: 2823

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

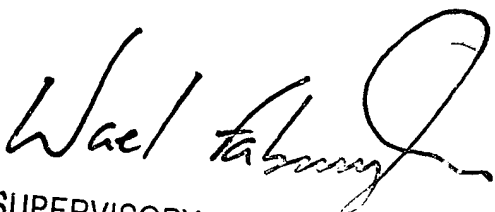
Julio J. Maldonado

Patent Examiner

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